



Trans-Lake Washington Project

First Level Screening Evaluation Results - Technical Steering Committee Review Draft with Comments

Prepared for

**Washington State Department of Transportation
Office of Urban Mobility**

401 Second Avenue South, Suite 300
Seattle, Washington 98104

Sound Transit

401 South Jackson Street
Seattle, Washington 98104

Trans-Lake Washington Project Team

Parametrix, Inc.
CH2M HILL
Parsons Brinckerhoff
EnviroIssues

October 12, 2000

**SUMMARY OF FIRST LEVEL EVALUATION AND SCREENING
TECHNICAL STEERING COMMITTEE WORK SESSION
RESULTS OF OCTOBER 4, 2000**

ID	Highway and HOV Alternatives	Effectiveness	Environmental Impacts	Initial Staff Recommendation	Technical Steering Committee Recommendation
A1	No Action			Y	Y
B1	Minimum Footprint	1	3	N	Y
B2	HOV Lanes	4	2	Y	Y
B3	GP and HOV Lanes	5	1	Y	Y
B4	GP Lanes	3	2	Y	Y
B5	Bus and Vanpool Only Lanes	3	2	Y (or B2 option)	Y
B6	HOV Tunnel	4	NR	Y (or B2 option)	N (consider as a B2 option)
B7	New Freeway and Bridge	3	1	N	N
B8	New 4-lane Arterial Bridge	2	1	N	N
B9	Close SR 520 Interchanges between I-5 and I-405	1	2	N	N (consider as an option to other alternatives)
B10	Modify HOV operations	2	NR	N	N (consider as D1 option)
B11	Lane Conversion	1	NR	N	N

NR = Not rated



**SUMMARY OF FIRST LEVEL EVALUATION AND SCREENING
TECHNICAL STEERING COMMITTEE WORK SESSION
RESULTS OF OCTOBER 4, 2000**

ID	High Capacity Transit Alternatives	Effectiveness	Environmental Impacts	Initial Staff Recommendation	Technical Steering Committee Recommendation
C1	HCT in SR-520 Corridor	4	2	Y	Y
C2	HCT in I-90 Corridor	4	3	Y	Y
C3	Mid Lake Corridor (between SR-520 and I-90)	4	1	Y	Y
c.4.1	New North Lake Corridor: Sand Point Juanita Kirkland	1	1	N	N
c.4.2	New North Lake Corridor: Madison to Kirkland	2	1	N	N

NR = Not rated



**SUMMARY OF FIRST LEVEL EVALUATION AND SCREENING
TECHNICAL STEERING COMMITTEE WORK SESSION
RESULTS OF OCTOBER 4, 2000**

ID	TDM/TSM/Land Use and Other	Effectiveness	Environmental Impacts	Initial Staff Recommendation	Technical Steering Committee Recommendation
D1	Increase effectiveness/ investment in TDM	4	4	Y	Y
E1	Passenger Ferry	2	NR	N (consider as D1 option)	N
E2	Arterial Connections	1	NR	N	N

NR = Not rated



HIGHWAY MODAL ALTERNATIVE: A1**NAME: No Action**

Description: No corridor improvements. Assumes that the floating bridge will be replaced as a system preservation project.

First level screening evaluation results		Rating
<i>Transportation Effectiveness: Will the alternative be effective in improving mobility for people or goods?</i>		Not rated
MEASURE	DISCUSSION	
Mobility: person and vehicles/freight carried	Poor mobility. Earlier forecasts projected that in year 2020 travel demand will overload the highway. Stop-and-go conditions throughout the day will constrain the timely movement of people and vehicles including freight. All modes of travel will be affected.	
Mobility: congestion reduction	As the project's baseline scenario, the No Action alternative would result in substantially worsened congestion over current conditions.	
Safety and Reliability: Connecting Facilities	Backups at ramps feeding SR-520 from other freeways and major streets would lengthen substantially compared to No Action and may impede operations on those facilities.	
Safety and Reliability: System Capacity	No increase in system capacity in terms of people or vehicles/freight carried.	
Safety and Reliability: HOV system	No HOV improvements . The corridor would continue to be a missing link in the regional system, and HOV and transit users would have no significant travel time advantages.	
System and plan compatibility	Not compatible with regional systems plans. Effective mobility in the SR-520 corridor is a key element of regional plans, which assume mobility improvements on the corridor, with an emphasis on HOV facilities.	
<i>Environmental Impacts: Can we reasonably avoid, minimize or mitigate environmental impacts?</i>		Not rated
MEASURE	DISCUSSION	
Wetlands	No additional footprint and no impact.	
ESA Habitat	No additional footprint and no impact.	
Historic, Cultural, Parkland	No additional footprint and no impact.	
Displacements	No additional footprint and no impact.	
Neighborhood effects	Increase in SR-520 congestion levels would increase congestion on local streets, and increase cut-through traffic in neighborhoods adjacent to SR-520. Increased vehicles idling in neighborhoods would increase air quality impacts to surrounding communities.	
Costs		
MEASURE	DISCUSSION	
Costs	\$0.3-0.4 billion	



RATINGS SCALE				
WORST				BEST
1	2	3	4	5
Least Effective or Most Impacts or Cannot Meet Purpose and Need	Lower Effectiveness, Medium Impacts	Medium Effectiveness or Low Impacts	Increased Effectiveness, No Impact	Most Effective, Improved Environment

Initial Staff Recommendation to carry forward

YES ☒ NO ☐ No action alternative is required in an EIS.

Technical Steering Committee Recommendation to carry forward

YES ☒ NO ☐ No Action alternative is required in an EIS.



HIGHWAY MODAL ALTERNATIVE: B1

NAME: Minimum Footprint

Description: Provide limited safety and operational changes to SR-520 and improve HOV access. The highway would have the same number of lanes but with shoulder, median, and emergency refuges. The widening required would not be continuous and shoulder widths would be minimal. Bike and pedestrian improvements would be added, including across the lake. The floating bridge would be replaced and widened, including approach structures for the east and west high-rises and for the Portage Bay viaduct. Interchanges would be modified to improve HOV access and to accommodate bike and pedestrian connections.

First level screening evaluation results

Rating

<i>Transportation Effectiveness: Will the alternative be effective in improving mobility for people or goods?</i>		1
MEASURE	DISCUSSION	
Mobility: person and vehicles/freight carried	Poor mobility. A slight improvement over No Action could occur, but the corridor will continue to be greatly overloaded. Mobility for all modes will be constrained.	
Mobility: congestion reduction	The minor improvement in the corridors capacity would not be likely to reduce congestion or improve travel speeds.	
Safety and Reliability: Connecting Facilities	No substantial change from No Action.	
Safety and Reliability: System Capacity	Travel reliability could continue to be poor, as the increase in system capacity would be minor in terms of people or vehicles/freight carried.	
Safety and Reliability: HOV system	HOV and transit users could have slight advantages at ramps and interchanges, but there would be otherwise be poor reliability and slow travel times along the corridor.	
System and plan compatibility	With no substantial improvement to overall mobility and to HOV and transit in particular, the alternative would not be compatible with regional systems plans.	
<i>Environmental Impacts: Can we reasonably avoid, minimize or mitigate environmental impacts?</i>		3
MEASURE	DISCUSSION	
Wetlands	Comparatively small additional footprint may impact wetlands in the Foster Island area and/or Yarrow Bay area; somewhat offset by potential improvements to water quality in adjacent wetlands due to improved design.	
ESA Habitat	Area around Montlake Cut and Union Bay is an ESA-sensitive migration route and rearing area for all salmon in the Cedar and Sammamish river systems. Areas along both the eastern and western shorelines are bald eagle habitat. These impacts are minimally offset by improved design standards that would potentially improve water quality in Lake Washington.	



Historic, Cultural, Parkland	Comparatively small additional footprint, but adjacent parklands include Foster Island/Washington Park Arboretum.
Displacements	Comparatively small additional footprint, likely no displacements.
Neighborhood effects	Comparatively small additional footprint; SR-520 congestion similar to No Action, therefore air and noise impacts to neighborhoods similar to No Action. SR-520 pull-outs for traffic incidents may result in smaller congestion impacts to local streets.
Costs	
MEASURE	DISCUSSION
Costs	\$0.8-0.9 billion

RATINGS SCALE				
WORST				BEST
1	2	3	4	5
Least Effective or Most Impacts or Cannot Meet Purpose and Need	Lower Effectiveness, Medium Impacts	Medium Effectiveness or Low Impacts	Increased Effectiveness, No Impact	Most Effective, Improved Environment

Initial Staff Recommendation to carry forward

YES ☐ NO ☒

Technical Steering Committee Recommendation to carry forward

YES ☒ NO ☐



HIGHWAY MODAL ALTERNATIVE: B2

NAME: HOV Lanes

Description: Add one continuous HOV lane in each direction of SR-520 for a total of 6 lanes. The widening would include improved shoulders and median, bicycle and pedestrian facilities, replacement of the Portage Bay and high-rise bridge structures and the floating bridge. Substantial interchange improvements would occur at I-5, Montlake Boulevard, 84th Avenue NE, 92nd Avenue NE, and Bellevue Way. Improvements at the I-405 interchange and I-5 interchange would include HOV direct-access ramp connections. Other interchanges east of I-405 may also require modifications.

First level screening evaluation results

Rating

<i>Transportation Effectiveness: Will the alternative be effective in improving mobility for people or goods?</i>		4
MEASURE	DISCUSSION	
Mobility: person and vehicles/freight carried	Earlier regional forecasts predicted that the added HOV lanes could carry substantially more people and vehicles/freight compared to No Action in 2020. The improved mobility would <u>likely</u> be higher for people than for vehicles/freight.	
Mobility: congestion reduction	Overall congestion could continue to be severe, but average travel speeds would probably improve over No Action because of the benefits to HOV and transit users who can move at higher speeds in an HOV lane.	
Safety and Reliability: Connecting Facilities	Connecting facilities could benefit because the alternative would provide a more continuous regional HOV system and would improve freeway-to-freeway connections.	
Safety and Reliability: System Capacity	Overall capacity could be improved, although general purpose lanes would probably continue to be highly congested.	
Safety and Reliability: HOV system	The added HOV lanes would improve travel speeds and reliability for HOV and transit, although congestion in the GP lanes could still impede HOV travel.	
System and plan compatibility	The HOV lanes would help complete the regional HOV system, and would be consistent with regional plans.	
<i>Environmental Impacts: Can we reasonably avoid, minimize or mitigate environmental impacts?</i>		2
MEASURE	DISCUSSION	
Wetlands	A 6-lane configuration would have somewhat less impacts to wetlands in the Foster Island, <u>Cozy Cove</u> , <u>Fairweather Bay</u> , and Yarrow Bay areas than an 8-lane configuration (i.e., medium impacts).	
ESA Habitat	Area around Montlake Cut and Union Bay is an ESA-sensitive migration route and rearing area for all salmon in the Cedar and Sammamish river systems. Areas along both the eastern and western shorelines are bald eagle habitat.	



Historic, Cultural, Parkland	A 6-lane configuration could include impacts to Foster Island/Washington Park Arboretum area, Montlake Park, Interlaken Park, Roanoke Park, Fairweather Park, Hunts Point Park, Wetherhill Nature Preserve.
Displacements	A 6-lane configuration could displace a range of 0-5 structures west of the lake and 20-30 structures east of the lake would be displaced along SR-520 . (Source: previous Trans-Lake Washington Study)
Neighborhood effects	As a 6-lane configuration, additional R/W needs would infringe on adjacent neighborhoods. Increased vehicular capacity would increase air and noise impacts to neighborhoods as compared to No Action. Cut-through traffic would decrease due to increased mobility.
Costs	
MEASURE	DISCUSSION
Costs	\$1.3-1.6 billion

RATINGS SCALE				
WORST				BEST
1	2	3	4	5
Least Effective or Most Impacts or Cannot Meet Purpose and Need	Lower Effectiveness, Medium Impacts	Medium Effectiveness or Low Impacts	Increased Effectiveness, No Impact	Most Effective, Improved Environment

Initial Staff Recommendation to carry forward

YES ☒ NO ☐

Technical Steering Committee Recommendation to carry forward

YES ☒ NO ☐



HIGHWAY MODAL ALTERNATIVE: B3

NAME: GP and HOV Lanes

Description: Add one HOV lane and one general-purpose lane in each direction for a total of 8 lanes. The alternative also includes shoulder and median widening and the addition of bicycle and pedestrian facilities. All of the interchanges and overpasses would need to be reconstructed to accommodate the widened roadway. The Portage Bay and Lake Washington crossing structure would be replaced. The I-5/SR-520 and I-405/SR-520 interchanges would require significant modifications, including HOV direct access connections. Details such as the use of tunnels, lids, or double-decking remain to be determined.

First level screening evaluation results

Rating

<i>Transportation Effectiveness: Will the alternative be effective in improving mobility for people or goods?</i>		5
MEASURE	DISCUSSION	
Mobility: person and vehicles/freight carried	A substantial increase in the number of people and vehicles/freight carried would be expected over No Action. The travel time incentives for HOV and transit use could improve corridor efficiency and relieve burdens on general purpose lanes. The doubling of corridor lane capacity would also benefit freight movement and general GP travel, assuming connecting facilities can accommodate the added volumes.	
Mobility: congestion reduction	Improved travel speeds compared to No Action would be anticipated, although congestion would still occur at peak periods.	
Safety and Reliability: Connecting Facilities	The increased number of vehicles carried has more potential to impact connecting facilities, although there is the potential for some connecting facilities to be designed to reduce impacts. Other areas may not be able to accommodate the added traffic.	
Safety and Reliability: System Capacity	The additional lanes would help accommodate forecasted increases in system demand and would be a significant increase in system capacity, as long as connecting facilities are able to accommodate the traffic volumes.	
Safety and Reliability: HOV system	The added HOV lanes would improve travel speeds and reliability for HOV and transit, and there would be less potential for congestion in the GP lanes to affect travel.	
System and plan compatibility	Completes regional HOV system. Although regional plans call for high quality transportation links between major urban centers, they have not previously anticipated an increase in GP capacity across the lake . However, plan updates are considering general capacity increases. Most As of October 2000, most adopted local and regional plans still emphasize d HOV and transit improvements.	



Environmental Impacts: Can we reasonably avoid, minimize or mitigate environmental impacts?		1
MEASURE	DISCUSSION	
Wetlands	The footprint required for an 8-lane facility would have substantial impacts, primarily due to the highway's proximity to wetlands in the Foster Island/Arboretum area and also to Cozy Cove, Fairweather Bay, and Yarrow Bay wetlands on the east side. There is the potential for designs that reduce or avoid some impacts.	
ESA Habitat	Area around Montlake Cut and Union Bay is an ESA-sensitive migration route and rearing area for all salmon in the Cedar and Sammamish river systems. Areas along both the eastern and western shorelines are bald eagle habitat. Crosses ESA-sensitive salmon-bearing stream near West Lake Sammamish Parkway.	
Historic, Cultural, Parkland	As an 8-lane configuration, comparatively the greatest impacts to parks, potentially including Foster Island/Washington Park Arboretum area, Montlake Park, Interlaken Park, Roanoke Park, Fairweather Park, Hunts Point Park, Wetherhill Nature Preserve, Marymoor Park, and Bear Creek Park.	
Displacements	As an 8-lane configuration, a range of 10-20 structures west of the lake and 50-60 structures east of the lake would be displaced along SR-520 . (Source: previous Trans-Lake Washington Study)	
Neighborhood effects	As an 8-lane configuration, additional R/W needs would infringe upon adjacent neighborhoods more than a 6-lane configuration. A greater increase in vehicular capacity would increase air and noise impacts to neighborhoods as compared to No Action. Cut-through traffic would decrease the most due to increased mobility, although additional traffic could be introduced in some areas.	
Costs		
MEASURE	DISCUSSION	
Costs	\$1.9-2.3 billion	

RATINGS SCALE				
WORST				BEST
1	2	3	4	5
Least Effective or Most Impacts or Cannot Meet Purpose and Need	Lower Effectiveness, Medium Impacts	Medium Effectiveness or Low Impacts	Increased Effectiveness, No Impact	Most Effective, Improved Environment

Initial Staff Recommendation to carry forward

YES ☒ NO ☐

Technical Steering Committee Recommendation to carry forward

YES ☒ NO ☐



HIGHWAY MODAL ALTERNATIVE: B4

NAME: GP Lanes

Description: Add one continuous general-purpose lane each way to the corridor for a total of 6 lanes. The widening would include improved shoulders and median, replacement of the Portage Bay viaduct and Lake Washington crossing, and the addition of bicycle and pedestrian facilities. Substantial interchange improvements would occur at I-5, Montlake Boulevard, 84th Avenue NE, 92nd Avenue NE, Bellevue Way, and I-405. Design options including tunnels, lids or double-decking remain to be determined.

First level screening evaluation results		Rating
<i>Transportation Effectiveness: Will the alternative be effective in improving mobility for people or goods?</i>		3
MEASURE	DISCUSSION	
Mobility: person and vehicles/freight carried	The alternative could increase the number of vehicles carried compared to No Action, but the lack of travel time incentives for HOV or transit use could reduce the number of people carried compared to alternatives with HOV facilities. Freight movement could improve.	
Mobility: congestion reduction	Congestion would be lower than no action, but the ratio of persons to vehicles would be lower, reducing overall average travel speeds.	
Safety and Reliability: Connecting Facilities	The lack of HOV lanes on SR-520 could impact HOV facilities on other connecting roadways. Impacts to I-5 and I-405 and local streets (unless improved also) are also likely because they are not forecasted to have additional available general purpose capacity.	
Safety and Reliability: System Capacity	System capacity would increase, particularly for freight movement, but there would be little incentive for carpool and transit. Therefore reliability is expected to be better than No Action but overall improvement would be lower than HOV alternatives.	
Safety and Reliability: HOV system	HOV and transit users would not have travel time advantages. The congestion in GP lanes would result in lower reliability for transit and HOV.	
System and plan compatibility	Does not complete regional HOV system. Previous regional plans also have not anticipated an increase in GP capacity although such actions are now being considered . Most local and regional plans prefer HOV and transit improvements to provide multimodal connections.	
<i>Environmental Impacts: Can we reasonably avoid, minimize or mitigate environmental impacts?</i>		2
MEASURE	DISCUSSION	
Wetlands	As a 6-lane configuration, this alternative has somewhat less impacts to wetlands in the Foster Island, Cozy Cove, Fairweather Bay , and Yarrow Bay areas than the 8-lane configuration (i.e., medium impacts).	



ESA Habitat	Area around Montlake Cut and Union Bay is an ESA-sensitive migration route and rearing area for all salmon in the Cedar and Sammamish river systems. Areas along both the eastern and western shorelines are bald eagle habitat.
Historic, Cultural, Parkland	Assume same footprint and impacts as B2.
Displacements	Assume same footprint and impacts as B2.
Neighborhood effects	Assume same footprint and impacts as B2, so many impacts would be similar. However, the anticipated increase in congestion could create added queuing and traffic on neighborhood streets.
Costs	
MEASURE	DISCUSSION
Costs	\$1.1-1.4 billion

RATINGS SCALE				
WORST				BEST
1	2	3	4	5
Least Effective or Most Impacts or Cannot Meet Purpose and Need	Lower Effectiveness, Medium Impacts	Medium Effectiveness or Low Impacts	Increased Effectiveness, No Impact	Most Effective, Improved Environment

Initial Staff Recommendation to carry forward

YES ☒ NO ☐

Technical Steering Committee Recommendation to carry forward

YES ☒ NO ☐



HIGHWAY MODAL ALTERNATIVE: B5

NAME: Bus and Vanpool Only Lanes

Description: Add a continuous lane each way for the use of buses and registered vanpools (HOV-6) to the corridor for a total of 6 lanes. The widening would include improved shoulders and median, replacement of the Portage Bay and Lake Washington crossings, and the addition of bicycle/pedestrian facilities. Interchange improvements including bus-only direct access connections would occur at I-5, Montlake Boulevard, Bellevue Way, and I-405; the 84th and 92nd Avenue NE interchange would also be improved.

First level screening evaluation results

Rating

<i>Transportation Effectiveness: Will the alternative be effective in improving mobility for people or goods?</i>		3
MEASURE	DISCUSSION	
Mobility: person and vehicles/freight carried	A bus-only lane could increase transit ridership and vanpool use, but other rideshare travel would use the more congested GP lanes. Vehicles/freight and people carried would be higher than No Action but less than an HOV alternative.	
Mobility: congestion reduction	Congestion on SR-520 General Purpose lanes would be slightly less than No Action. Overall average travel speeds would be higher due to faster vanpool and transit trips, but GP travel speeds would be similar to No Action.	
Safety and Reliability: Connecting Facilities	The alternative would provide continuous bus-only connections, but it would not relieve congestion on general purpose lanes.	
Safety and Reliability: System Capacity	The alternative has the potential to move substantially more people if travelers shift to transit or vanpools. Overall vehicle capacity would be lower than other alternatives except No Action.	
Safety and Reliability: HOV system	With fewer vehicles in the lane, transit operations should be very effective and reliable, although a bus lane without a barrier separation could be affected by poor operations on the adjacent GP lanes.	
System and plan compatibility	This alternative would be consistent with most regional plans and investment strategies, which are primarily focused on transit, HOV and other non-SOV improvements.	
<i>Environmental Impacts: Can we reasonably avoid, minimize or mitigate environmental impacts?</i>		2
MEASURE	DISCUSSION	
Wetlands	As a 6-lane configuration, this alternative has somewhat less impacts to wetlands in the Foster Island, Cozy Cove, Fairweather Bay , and Yarrow Bay areas than the 8-lane configuration (i.e., medium impacts).	
ESA Habitat	Area around Montlake Cut and Union Bay is an ESA-sensitive migration route and rearing area for all salmon in the Cedar and Sammamish river systems. Areas along both the eastern and western shorelines are bald eagle habitat.	
Historic, Cultural, Parkland	Assume same footprint and impacts as B2.	



Displacements	Assume same footprint and impacts as B2.
Neighborhood effects	Assume same footprint and impacts as B2.
Costs	
MEASURE	DISCUSSION
Costs	\$1.3-1.6 billion

RATINGS SCALE				
WORST				BEST
1	2	3	4	5
Least Effective or Most Impacts or Cannot Meet Purpose and Need	Lower Effectiveness, Medium Impacts	Medium Effectiveness or Low Impacts	Increased Effectiveness, No Impact	Most Effective, Improved Environment

Initial Staff Recommendation to carry forward

YES ☒ NO ☐ Consider as B2 or B3 option.

Technical Steering Committee Recommendation to carry forward

YES ☒ NO ☐



HIGHWAY MODAL ALTERNATIVE: B6**NAME: HOV Tunnel**

Description: Construct a new tunnel in the SR-520 corridor for HOV use only, and maintain the existing facility for GP lane use. Details of this alternative remain to be determined, pending engineering feasibility study of a tunnel in the corridor. Depending on tunnel feasibility, the alignment number of HOV lanes, and access connections would be further defined.

First level screening evaluation results**Rating**

<i>Transportation Effectiveness: Will the alternative be effective in improving mobility for people or goods?</i>		4
MEASURE	DISCUSSION	
Mobility: person and vehicles/freight carried	Similar benefits to Alternative B2. Travelers using HOV and transit would benefit, and GP/freight movement could improve as capacity becomes available on GP lanes.	
Mobility: congestion reduction	Similar to B2.	
Safety and Reliability: Connecting Facilities	Potentially similar to B2, although details of the tunnel and its connections are still to be determined.	
Safety and Reliability: System Capacity	The additional 2 lanes reserved for HOV and transit use in each direction would increase in potential capacity for moving people, and it would also the increase potential capacity for vehicles carried.	
Safety and Reliability: HOV system	A HOV facility separate from GP lanes would be expected to be very reliable and could offer the greatest potential increase in travel times.	
System and plan compatibility	Although this alternative would offer HOV and transit benefits, regional plans do not anticipate a new facility separate from SR-520.	
<i>Environmental Impacts: Can we reasonably avoid, minimize or mitigate environmental impacts?</i>		Not Rated
MEASURE	DISCUSSION	
Wetlands	Not enough information available to assess. (Committee requested more information.	
ESA Habitat	Not enough information available to assess. (Committee requested more information.	
Historic, Cultural, Parkland	Not enough information available to assess. (Committee requested more information.	
Displacements	Not enough information available to assess. (Committee requested more information.	
Neighborhood effects	Not enough information available to assess. (Committee requested more information.	



Costs	
MEASURE	DISCUSSION
Costs	\$3.0-3.6 billion

RATINGS SCALE				
WORST				BEST
1	2	3	4	5
Least Effective or Most Impacts or Cannot Meet Purpose and Need	Lower Effectiveness, Medium Impacts	Medium Effectiveness or Low Impacts	Increased Effectiveness, No Impact	Most Effective, Improved Environment

Initial Staff Recommendation to carry forward

YES ☒ NO ☐ Consider as B2 or B3 option.

Technical Steering Committee Recommendation to carry forward

YES ☐ NO ☒ Consider tunnel as an option for Alternative B2.



HIGHWAY MODAL ALTERNATIVE: B7

NAME: New Freeway and Bridge

Description: A six-lane freeway consisting of 2 general purpose lanes and one HOV lane in each direction would be constructed between I-5 and I-405. Landside connections were assumed to be in a tunnel on both east and west sides. A new interchange near Lake City Way/SR-522 would be constructed at I-5 with collector-distributor lanes and direct HOV connections. The approximate location of the I-405 interchange is assumed to be just north of the Existing NE 85th street interchange. A partial interchange at Sand Point Way would be constructed.

First level screening evaluation results

Rating

<i>Transportation Effectiveness: Will the alternative be effective in improving mobility for people or goods?</i>		3
MEASURE	DISCUSSION	
Mobility: person and vehicles/freight carried	A new freeway corridor with 6 lanes would provide the greatest potential increase in people and vehicles/freight carried across the Lake, but its effectiveness would be limited at the I-5 and I-405 connections. These freeways would be unlikely to have sufficient capacity to accommodate the added traffic. Although earlier forecasts showed a new north corridor would carry as many vehicles/freight as an improved SR-520, the new corridor would not substantially reduce SR-520 volumes.	
Mobility: congestion reduction	Some of the burden on SR-520 would be relieved, but many HOV and GP travelers would continue to use the SR-520 corridor even with a new corridor to the north. A moderate change in congestion and higher travel speeds would result for the SR-520 corridor. The benefits could be offset by increased congestion on connecting facilities, resulting in little improvement in overall travel.	
Safety and Reliability: Connecting Facilities	Connecting facilities such as I-405 and I-5 would be unable to accommodate the travel volumes generated by the new corridor and would be substantially impacted. Where the freeway connects to local streets, substantial impacts would also occur.	
Safety and Reliability: System Capacity	The alternative would provide a high level of Trans-Lake capacity, although delays on connecting facilities would constrain the overall benefits.	
Safety and Reliability: HOV system	The existing HOV system plan is not oriented to a new northern corridor, and there is no HOV connection from I-5 toward downtown. The additional distance and the delays from connecting facilities would result in a lower level of reliability for HOV and transit users.	
System and plan compatibility	A major new freeway is not anticipated, particularly because it does not directly connect the major urban centers. The corridor would also conflict with the long term operational vision for the regional system.	



Environmental Impacts: Can we reasonably avoid, minimize or mitigate environmental impacts?		1
MEASURE	DISCUSSION	
Wetlands	No wetlands identified in this area.	
ESA Habitat	Adds new structure to the shorelines; potentially impacting migrating edge-oriented juvenile chinook on both sides of the lake and bald eagle habitat on the west side of the lake.	
Historic, Cultural, Parkland	New areas of disturbance, greater potential for impacts to historic/cultural sites or parks. Parks potentially impacted include Kiwanis Park and Waverly Beach Park	
Displacements	Portals for a new corridor would displace 40-50 structures west of the lake and 50-60 structures east of the lake. (Source: previous Trans-Lake Washington Study)	
Neighborhood effects	Additional neighborhoods where portals located (Roosevelt/Maple Leaf, Sand Point, Kirkland) would be impacted by physical disruption to neighborhood, increase in vehicular traffic on supporting arterials and local streets, increase in air and noise impacts to surrounding neighborhoods from increased local congestion. Cut-through traffic could result as vehicles approach bridge —A moderate change in vehicular capacity and congestion near on SR-520_ would somewhat There could be a slight decrease in congestion and cut-through traffic in local SR-520 -adjacent streets. Additional vehicle capacity on SR-520 would increase air and noise impacts to neighborhoods adjacent to SR-520.	
Costs		
MEASURE	DISCUSSION	
Costs	4.8-5.8 million	

RATINGS SCALE				
WORST				BEST
1	2	3	4	5
Least Effective or Most Impacts or Cannot Meet Purpose and Need	Lower Effectiveness, Medium Impacts	Medium Effectiveness or Low Impacts	Increased Effectiveness, No Impact	Most Effective, Improved Environment

Initial Staff Recommendation to carry forward

YES ☐ NO ☒

Technical Steering Committee Recommendation to carry forward

YES ☐ NO ☒



HIGHWAY MODAL ALTERNATIVE: B8

NAME: New 4-lane Arterial Bridge

Description: A four-lane arterial connection would be built between Sand Point Way in Seattle, just north of the NOAA facility, and the NE 124th Street corridor in Kirkland. A floating bridge would be required. A tunnel would be used on the Eastside between Lake Washington and the west end of existing NE 124th Street. NE 124th Street would be widened between the tunnel portal and I-405 to four lanes with either medians or with a two-way left turn lane. Segments of Sand Point Way would also have to be widened to provide the necessary turn lanes at the new intersection.

First level screening evaluation results

Rating

<i>Transportation Effectiveness: Will the alternative be effective in improving mobility for people or goods?</i>		2
MEASURE	DISCUSSION	
Mobility: person and vehicles/freight carried	An arterial corridor would provide a moderate increase in mobility but analysis for the Trans-Lake Study indicated that the benefit to SR-520 mobility would be minor. Benefits to transit or HOV users would be limited because the corridor does not connect to major facilities.	
Mobility: congestion reduction	Because demand for SR-520 would remain strong and the new arterial would not provide a complete connection, congestion levels would remain high on SR-520. Bottlenecks at each end of the new corridor would also create congestion.	
Safety and Reliability: Connecting Facilities	Connecting arterial facilities such as Sand Point Way/SR 523, NE 124th Street and Juanita Way would be significantly impacted.	
Safety and Reliability: System Capacity	The connection would not provide a major increase in capacity because of the lower speeds for an arterial and the limited capacity at connecting facilities.	
Safety and Reliability: HOV system	The lack of established connections for HOV would result in little benefit to transit and HOV users, and for the majority of travelers the route would be less direct than SR-520.	
System and plan compatibility	A new north bridge connection is not anticipated in regional plans and would not complement capital investment and transit service strategies. It also would not link with a regional HOV system.	
<i>Environmental Impacts: Can we reasonably avoid, minimize or mitigate environmental impacts?</i>		1
MEASURE	DISCUSSION	
Wetlands	This alternative includes the widening of NE 124th Street. There are a few small wetlands south of this street and west of 113th Ave NE that may be impacted, but they could potentially be avoided.	
ESA Habitat	Adds new structure to the shorelines; potentially impacting migrating edge-oriented juvenile chinook on both sides of the lake and bald eagle habitat on both sides of the lake.	



Historic, Cultural, Parkland	New areas of disturbance, greater potential for impacts to historic/cultural sites or parks. Parks potentially impacted include Lake Washington Park and North Kirkland Community Center Park.
Displacements	A range of 5-10 structures would be displaced at the western portal, with additional displaced structures along Sand Point Way. A range of 30-40 structures would be displaced east of the lake. (Source: previous Trans-Lake Washington Study)
Neighborhood effects	Neighborhoods (Sand Point and Kirkland) impacted by physical disruption from portals and widened arterials; increased vehicular traffic in area would increase local air and noise impacts. Cut-through traffic could increase as vehicles approach bridge. Congestion on SR-520 would remain high, therefore impacts to neighborhoods adjacent to SR-520 would be similar to No Action.
Costs	
MEASURE	DISCUSSION
Costs	\$0.9-1.1 billion

RATINGS SCALE				
WORST				BEST
1	2	3	4	5
Least Effective or Most Impacts or Cannot Meet Purpose and Need	Lower Effectiveness, Medium Impacts	Medium Effectiveness or Low Impacts	Increased Effectiveness, No Impact	Most Effective, Improved Environment

Initial Staff Recommendation to carry forward

YES ☐ NO ☒

Technical Steering Committee Recommendation to carry forward

YES ☐ NO ☒



HIGHWAY MODAL ALTERNATIVE: B9

NAME: Close SR-520 Interchanges between I-5 and I-405

Description: Close selected interchanges and ramps between I-5 and I-405. Specific locations or configurations remain to be determined, but two options were suggested: Close some or all interchanges between I-5 and I-405; or close westbound ramps between I-405 and Lake Washington at peak periods.

First level screening evaluation results

Rating

Transportation Effectiveness: Will the alternative be effective in improving mobility for people or goods?		1
MEASURE	DISCUSSION	
Mobility: person and vehicles carried	Would not provide additional <u>add substantial</u> carrying capacity and would be unlikely to reduce travel volumes. Would also potentially decrease the corridor's carrying capacity because of Bottlenecks <u>could</u> be increased at the remaining access points <u>and on surface local streets leading to these access points</u> . Since this is likely to result in a decrease in <u>overall</u> mobility compared to No Action, this would not meet the project's purpose and need.	
Mobility: congestion reduction	<u>Increased congestion on local arterials would be expected.</u>	
Safety and Reliability: Connecting Facilities	Would substantially increase volumes at remaining access points, causing severe impacts.	
Safety and Reliability: System Capacity	Would not increase system capacity and could worsen overall conditions by increasing back-ups.	
Safety and Reliability: HOV system	Would not improve HOV reliability and could remove connections for transit and HOV travelers.	
System and plan compatibility	Not compatible. Local plans do not advocate removing existing access, and regional strategies seek to improve effective access for transit and HOV.	
Environmental Impacts: Can we reasonably avoid, minimize or mitigate environmental impacts?		2
MEASURE	DISCUSSION	
Wetlands	No impacts if no additional footprint is required.	
ESA Habitat	No impacts if no additional footprint is required.	
Historic, Cultural, Parkland	No impacts if no additional footprint is required.	
Displacements	No impacts if no additional footprint is required.	
Neighborhood effects	Although some cut through traffic would be eliminated in some areas, it could increase in others as vehicles increase their travel distances to reach access points. The loss of access to a regional facility would also negatively impact neighborhood quality.	



Costs	
MEASURE	DISCUSSION
Costs	Not determined.

RATINGS SCALE				
WORST				BEST
1	2	3	4	5
Least Effective or Most Impacts or Cannot Meet Purpose and Need	Lower Effectiveness, Medium Impacts	Medium Effectiveness or Low Impacts	Increased Effectiveness, No Impact	Most Effective, Improved Environment

Initial Staff Recommendation to carry forward

YES ☐ NO ☒

Technical Steering Committee Recommendation to carry forward

YES ☐ NO ☒ Could be used as an option with other alternatives.



HIGHWAY MODAL ALTERNATIVE: B10**NAME: Modify HOV operations**

Description: Modify HOV operations in the existing corridor by changing the HOV restriction to HOV-2 (in lieu of the existing HOV-3), all day or from 7 A.M. to 7 P.M.

First level screening evaluation results**Rating**

Transportation Effectiveness: Will the alternative be effective in improving mobility for people or goods?		1
MEASURE	DISCUSSION	
Mobility: person and vehicles carried	Lower potential to improve mobility. Lowering HOV requirements would tend to remove <u>decrease</u> rather than increase overall <u>person throughput capacity</u> , and would lower system effectiveness compared to No Action. This would not meet the project's purpose and need.	
Mobility: congestion reduction	<u>Would not reduce congestion and instead would increase congestion.</u>	
Safety and Reliability: Connecting Facilities	Would not have a major effect on connecting facilities.	
Safety and Reliability: System Capacity	Would not increase system capacity.	
Safety and Reliability: HOV system	Would not improve HOV reliability and would likely decrease reliability.	
System and plan compatibility	Not compatible. Regional HOV policies are designed to maintain the efficient movement of vehicles carrying higher number of people.	
Environmental Impacts: Can we reasonably avoid, minimize or mitigate environmental impacts?		Not rated
MEASURE	DISCUSSION	
Wetlands	No impacts if no additional footprint is required.	
ESA Habitat	No impacts if no additional footprint is required.	
Historic, Cultural, Parkland	No impacts if no additional footprint is required.	
Displacements	No impacts if no additional footprint is required.	
Neighborhood effects	Not likely to have substantial impacts.	
Costs		
MEASURE	DISCUSSION	
Costs	Not determined.	

RATINGS SCALE

WORST				BEST
1	2	3	4	5
Least Effective or Most Impacts or Cannot Meet Purpose and Need	Lower Effectiveness, Medium Impacts	Medium Effectiveness or Low Impacts	Increased Effectiveness, No Impact	Most Effective, Improved Environment



Initial Staff Recommendation to carry forward

YES ☐ NO ☒

Technical Steering Committee Recommendation to carry forward

YES ☐ NO ☒



HIGHWAY MODAL ALTERNATIVE: B11**NAME: Lane Conversion**

Description: Similar to the No Action alternative but changing the operations of the highway. Options suggested included reserving one lane of SR-520 for peak period HOV; reserving all lanes of SR-520 for peak period HOV; or allowing transit only until a new transit-only bridge can be constructed.

First level screening evaluation results**Rating**

<i>Transportation Effectiveness: Will the alternative be effective in improving mobility for people or goods?</i>		1
MEASURE	DISCUSSION	
Mobility: person and vehicles carried	Lowest potential to improve mobility. Converting existing lanes for transit only use for peak-period HOV was reviewed in the Trans-Lake Washington Study and found to be ineffective. Impacts to freight movement and general purpose travel would be severe, including longer travel distances and increased congestion. Corridor capacity was also reduced by the operational impacts that would result from diverted traffic. Since this alternative would reduce multimodal system effectiveness compared to No Action, it would not meet the project's purpose and need.	
Mobility: congestion reduction	Would substantially increase congestion due to worsened operations .	
Safety and Reliability: Connecting Facilities	Diverted traffic could negatively impact connecting facilities.	
Safety and Reliability: System Capacity	Would reduce system capacity.	
Safety and Reliability: HOV system	Would provide a missing link but would increase conflicts at connections, lowering reliability.	
System and plan compatibility	Not consistent with regional or rural -local planning which do not contemplate a loss of general purpose capacity.	
<i>Environmental Impacts: Can we reasonably avoid, minimize or mitigate environmental impacts?</i>		Not rated
MEASURE	DISCUSSION	
Wetlands	No additional footprint and no impact.	
ESA Habitat	No additional footprint and no impact.	
Historic, Cultural, Parkland	No additional footprint and no impact.	
Displacements	No additional footprint and no impact.	
Neighborhood effects	Similar to B9.	



Costs	
MEASURE	DISCUSSION
Costs	Not determined.

RATINGS SCALE				
WORST				BEST
1	2	3	4	5
Least Effective or Most Impacts or Cannot Meet Purpose and Need	Lower Effectiveness, Medium Impacts	Medium Effectiveness or Low Impacts	Increased Effectiveness, No Impact	Most Effective, Improved Environment

Initial Staff Recommendation to carry forward

YES ☐ NO ☒ Does not meet project's purpose and need.

Technical Steering Committee Recommendation to carry forward

YES ☐ NO ☒ Does not meet project's purpose and need.



HCT MODAL ALTERNATIVE: C1

Name: HCT in SR-520 Corridor

Description: This corridor would involve an HCT facility constructed as part of a new and or expanded multimodal facility in or adjacent to the existing SR-520 bridge. The technology choice for HCT is not determined, but is assumed to operate in a separate right-of-way. A large number of alignment options and cross sections are possible primarily in the Union Bay area. Depending on the westside route option, the HCT facility might depart from the roadway bridge and enter a tunnel to reach the University of Washington. A route departing the bridge and heading southwest toward Capitol Hill via Madison has also been suggested.

First level screening evaluation results

Rating

<i>Transportation Effectiveness: Will the alternative be effective in improving mobility for people or goods?</i>		4
MEASURE	DISCUSSION	
Ridership potential: What are the size and the character of markets served? What is the potential to reduce congestion?	Strong ridership potential. Connects a high number of the region's urban centers, including potential connections to the Seattle CBD, Capitol Hill/First Hill, the University District and Bellevue, and would allow a direct route to Redmond. It would also provide the most direct eastside route for North Seattle and North King County travelers. The SR-520 route would not serve Issaquah or Mercer Island, relatively smaller markets. Could slightly reduce highway congestion.	
Reliability: System Capacity	Would have the capacity to serve high numbers of travelers and would be likely to offer reliable and competitive travel times, particularly if they are in an exclusive right of way. If LRT technology is used, a direct connection to the Central Link line could impact system capacity.	
System and plan compatibility	Not fully consistent with Sound Transit's Long Range Plan and Vision, which places HCT in the I-90 corridor. Substantial changes in ST's plan would be likely if a SR-520 route is used for HCT. However, the route is on an established regional corridor and connects major urban centers which is consistent with Vision 2020.	
<i>Environmental Impacts: Can we reasonably avoid, minimize or mitigate environmental impacts?</i>		2
MEASURE	DISCUSSION	
Wetlands	Regardless of whether the bridge is shared or an adjacent bridge is constructed, the SR-520 corridor would be widened to accommodate HCT usage. This could impact wetlands near Foster Island, Cozy Cove, Fairweather Bay, and Yarrow Bay.	
Habitat (especially ESA species)	Regardless of whether the bridge is shared or an adjacent bridge is constructed, the SR-520 corridor would be widened to accommodate HCT usage. The impacts to migrating, edge-oriented juvenile chinook are judged to be somewhat less than creating a new corridor. Bald eagle habitat may be impacted on both sides of the lake.	



Historic, Cultural, Parkland	SR-520 would be widened to accommodate HCT. Parks potentially impacted include Foster Island/Washington Park Arboretum, Montlake Park, Roanoke Park, Interlaken Park, Fairweather Park, Hunts Point Park, Wetherhill Nature Preserve, Marymoor Park, and Bear Creek Park.
Displacements	Based on the highly dense areas the HCT alignment could follow, many structures could be displaced.
Neighborhood effects	HCT could disrupt neighborhoods adjacent to SR-520 by increasing noise levels, taking new R/W in neighborhoods for any stations, acting as a barrier within neighborhoods. HCT stations with park-and-ride lots could increase traffic in neighborhoods.
Costs	
MEASURE	DISCUSSION
Costs	The lake crossing portions of this corridor would be costly, although there are opportunities to share costs and gain economies if shared HCT/SR520 bridge is constructed. Without additional engineering work it is not known whether many of the alignment options are physically possible, including tunnel options through Union Bay. Bridge options outside the existing SR-520 alignment could be very costly as a result of the land that would be required. Potential westside connections would be costly and involve significant amounts of tunneling and the construction of subway stations through very congested areas and in difficult soil conditions. On the Eastside of Lake Washington costs would be comparable or less than most of the other options, assuming a major section of the alignment can be built jointly with the roadway in the SR-520 corridor at least to I-405. The most expensive section would be through the Bellevue CBD which would likely have to be in subway.

RATINGS SCALE				
WORST				BEST
1	2	3	4	5
Least Effective or Most Impacts or Cannot Meet Purpose and Need	Lower Effectiveness, Medium Impacts	Medium Effectiveness, Low Impacts	Increased Effectiveness, No Impact	Most Effective, Improved Environment

Initial Staff Recommendation to carry forward

YES ☒ NO ☐

Technical Steering Committee Recommendation to carry forward

YES ☒ NO ☐



HCT MODAL ALTERNATIVE: C2

Name: HCT in I-90 Corridor

Description: This corridor would utilize the existing and/or possibly modified or expanded roadway facility within the I-90 corridor between the International District Station (IDS) at the south end of downtown Seattle and the Bellevue Way interchange just east of the East Channel Bridge. The technology choice for HCT is not determined, but is assumed to operate in a separate right-of-way. In its simplest form the HCT facility would be constructed in the existing HOV facility between IDS and Rainier Avenue. East of Rainier Avenue it would occupy part or all of the reversible roadway to Bellevue Way. Beyond this basic alignment option there are many variants possible including options to reconfigure and/or expand the existing I-90 facility to restore part or all of the displaced general purpose traffic and HOV capacity. In addition, there are other options that might use only portions of the existing I-90 facility.

First level screening evaluation results

Rating

<i>Transportation Effectiveness: Will the alternative be effective in improving mobility for people or goods?</i>		4
MEASURE	DISCUSSION	
Ridership potential: What are the size and the character of markets served? What is the potential to reduce congestion?	Strong ridership potential. Connects Seattle CBD and Bellevue CBD, and would allow connections to Kirkland or Redmond and/or Issaquah. Would provide most direct route to the Eastside for Seattle Central District and South Seattle travelers. Ability to reduce congestion would depend on I-90 lane configurations that are currently under study.	
Reliability: System Capacity	Would have the capacity to serve high numbers of travelers and would be likely to offer reliable and competitive travel times, particularly if the route features an exclusive right of way. However, this could reduce highway capacity.	
System and plan compatibility	An I-90 route for HCT is the Long Range Plan/Vision for Sound Transit, and has also long been assumed in other regional plans. If LRT is used, the I-90 route would be most complementary to Central Link operations.	
<i>Environmental Impacts: Can we reasonably avoid, minimize or mitigate environmental impacts?</i>		3
MEASURE	DISCUSSION	
Wetlands	Assuming the existing footprint is minimally changed, relatively few impacts to wetlands would occur. Routes departing the I-90 corridor may have additional wetlands impacts but route options remain to be determined.	
Habitat (especially ESA species)	Assuming the existing footprint is minimally changed, relatively few impacts to ESA habitat would occur.	
Historic, Cultural, Parkland	Minimal additional footprint would be required, potentially impacting Lid Park, Luther Burbank Park, Mercer Slough Park.	
Displacements	Minimal additional footprint would be required, likely no structures would be displaced.	



Neighborhood effects	Adjacent landscaping/roadway vegetation may be impacted, creating a visual impact to neighborhoods. HCT could disrupt neighborhoods along I-90 by increasing noise levels.
Costs	
MEASURE	DISCUSSION
Costs	The lake crossing portions of this corridor would be the least expensive of all of the corridor alternatives under study, even if major modifications were required to I-90 to maintain its current roadway capacity. This is also true of the Westside connections, where the existing transit way provides a direct connection into the IDS and the Central Link light rail line. On the Eastside, however, the extensions will be high cost, since no dedicated transit right-of-way exists and the connection north to Bellevue could require significant sections in tunnel. Possible extensions north to Totem Lake and east to Redmond would be costly because of the <u>relatively</u> long distance <u>away</u> from I-90.

RATINGS SCALE				
WORST				BEST
1	2	3	4	5
Least Effective or Most Impacts or Cannot Meet Purpose and Need	Lower Effectiveness, Medium Impacts	Medium Effectiveness, Low Impacts	Increased Effectiveness, No Impact	Most Effective, Improved Environment

Initial Staff Recommendation to carry forward

YES ☒ NO ☐

Technical Steering Committee Recommendation to carry forward

YES ☒ NO ☐



HCT MODAL ALTERNATIVE: C3

Name: Mid Lake Corridor (between SR-520 and I-90)

Description: This corridor would involve an entirely new crossing, for HCT only, of Lake Washington somewhere north of I-90 and south of SR-520. Technology for HCT is not yet determined. A number of possible crossings generally between the Medina area on the Eastside and the Madison Park/Madrona area on the Westside have been suggested. A route that would provide a Mercer Island station has also been suggested. Depending on engineering feasibility the crossing might be entirely in tunnel, on a new HCT only bridge or a combination of both.

First level screening evaluation results

Rating

<i>Transportation Effectiveness: Will the alternative be effective in improving mobility for people or goods?</i>		4
MEASURE	DISCUSSION	
Ridership potential: What are the size and the character of markets served? What is the potential to reduce congestion?	Potential exists to attract high levels of ridership because the travel time advantages of a direct connection from Coleman Dock, through Seattle CBD directly to Bellevue CBD. Depending on the route, the alternative could also serve First Hill and the Central District. Would also allow connections to Kirkland, Redmond or Issaquah.	
Reliability: System Capacity	Would have the capacity to serve high numbers of travelers and would be likely to offer reliable and competitive travel times, particularly if the route features an exclusive right of way.	
System and plan compatibility	A new east/west route separate from existing corridors is not included in Sound Transit's Long Range Plan/Vision. However, the route would provide an effective link between urban centers.	
<i>Environmental Impacts: Can we reasonably avoid, minimize or mitigate environmental impacts?</i>		1
MEASURE	DISCUSSION	
Wetlands	Not enough information available to rate. (Committee requested additional information)	
Habitat (especially ESA species)	Not enough information available to rate. (Committee requested additional information)	
Historic, Cultural, Parkland	A new corridor would be developed somewhere between SR-520 and I-90. Impacts would vary depending on alignment selected. An HCT alignment could potentially impact Madison Park, Washington Park/Arboretum, Denny Blaine Park, Howell Park, Madrona Park, Leschi Park, Medina Beach Park (including two historic sites within the park), Clyde Beach Park, Meydenbauer Park, Chism Beach Park, and Burrows Landing Park.	
Displacements	Displacement could vary greatly depending on alignment selected. Madison Park/Madrona are densely populated areas, suggesting a high number of displacements for an HCT alternative in this area.	
Neighborhood effects	A new transportation corridor would be developed within neighborhoods in between SR-520 and I-90. Depending on the HCT alignment, neighborhoods could experience increases in noise levels, cut-through traffic to access stations.	



Costs	
MEASURE	DISCUSSION
Costs	The lake crossing portions of this corridor would be very costly, with no opportunity to share costs and gain any economies that might be possible with a multimodal facility such as those contemplated in the other alternatives. Without additional engineering work, the feasibility of a tunnel cannot be determined and bridge options could be very costly as a result of the land that would be required for the approaches on each side of the lake. The connections west into the Seattle CBD would also be very high cost subway sections constructed through very congested areas and difficult soil conditions. Without additional engineering work, it is not known whether many of the alignment options are physically possible. On the Eastside of Lake Washington costs will probably be comparable or less than most of the other options, because the central crossing will probably result in the shortest total route network to serve the desired areas. The most expensive section will be that through the Bellevue CBD and westward to the lake, all of which will likely have to be in subway.

RATINGS SCALE

WORST				BEST
1	2	3	4	5
Least Effective or Most Impacts or Cannot Meet Purpose and Need	Lower Effectiveness, Medium Impacts	Medium Effectiveness, Low Impacts	Increased Effectiveness, No Impact	Most Effective, Improved Environment

Initial Staff Recommendation to carry forward

YES ☒ NO ☐

Technical Steering Committee Recommendation to carry forward

YES ☒ NO ☐



HCT MODAL ALTERNATIVE: C.4.1

Name: New North Lake Corridor: Sand Point Juanita Kirkland

Description: This corridor would involve an HCT facility constructed either as part of a new multimodal bridge or an HCT only bridge north of the SR-520 Corridor in the general area between Kirkland and Sandpoint. The choice for HCT technology has not yet been determined. Subject to further engineering studies an HCT only tunnel crossing may also be possible in this area. A large number of alignment options and cross sections are possible, with connections to the University District and Central Link on the westside, and to Kirkland (Totem Lake) and Redmond. Other eastside routes could continue south to the Bellevue CBD and then south and east to serve Eastgate and Issaquah.

First level screening evaluation results

Rating

<i>Transportation Effectiveness: Will the alternative be effective in improving mobility for people or goods?</i>		2
MEASURE	DISCUSSION	
Ridership potential: What are the size and the character of markets served? What is the potential to reduce congestion?	Limited ridership potential because no major urban centers are directly served, and the transit market between these two points is small. Would not preclude connections to Kirkland, Redmond or Bellevue but the route would increase travel times over other more direct routes.	
Reliability: System Capacity	No major difference between this and other alternatives, unless the route features in-street operations which would affect travel times. HCT would still have a comparably high reliability and safety.	
System and plan compatibility	Least compatible with regional transportation systems and plans. The line would establish a new connection between two points that have not been planned as growth centers and are not major transit markets. The route would not supplement existing or planned transit services, although it could connect with Central Link or a future I-405 LRT line.	
<i>Environmental Impacts: Can we reasonably avoid, minimize or mitigate environmental impacts?</i>		1
MEASURE	DISCUSSION	
Wetlands	The widening of NE 124th Street in Kirkland to accommodate arterial traffic may impact wetlands in the vicinity.	
Habitat (especially ESA species)	Adds new structure to the shorelines potentially impacting migrating edge-oriented juvenile chinook on both sides of the lake and bald eagle habitat on the west side of the lake.	
Historic, Cultural, Parkland	Parks potentially impacted include Kiwanis Park and Waverly Beach Park.	
Displacements	A range of 5-10 structures would be displaced at west of the lake, 30-40 structures displaced east of the lake. (Source: previous Trans-Lake Washington Study)	



Neighborhood effects	A new transportation corridor would be developed within the Sand Point and Juanita neighborhoods. HCT could act as a physical barrier within these neighborhoods, cause increased noise levels and increased neighborhood cut-through traffic to access HCT stations/park-and-ride lots.
Costs	
MEASURE	DISCUSSION
Costs	The Sandpoint-Kirkland lake crossing portions of this corridor are the shortest and thus, might be the least costly of the new bridge crossings, but still significantly more costly than the I-90 option. This will be highly dependent on the alignment chosen and whether costs are shared with an arterial structure. Without additional engineering work, the feasibility of a tunnel is not known and is likely to prove very costly if found feasible. All of the Westside connections will likely prove the most costly of all of the corridor alternatives, since they involve the longest alignments and significant sections that will have to be in tunnel as a result of the topography and the built up nature of the area. Without additional engineering work it is not known whether many of the alignment options through Seattle are physically possible. On the Eastside of Lake Washington costs would also be very high since this most northern crossing cannot take advantage of existing freeway right of way, except along the branch from Eastgate to Issaquah. As with the other options, the most expensive section will be through the Bellevue CBD which will likely have to be in subway.

RATINGS SCALE				
WORST				BEST
1	2	3	4	5
Least Effective or Most Impacts or Cannot Meet Purpose and Need	Lower Effectiveness, Medium Impacts	Medium Effectiveness, Low Impacts	Increased Effectiveness, No Impact	Most Effective, Improved Environment

Initial Staff Recommendation to carry forward

YES ☐ NO ☒

Technical Steering Committee Recommendation to carry forward

YES ☐ NO ☒



HCT MODAL ALTERNATIVE: C.4.2

Name: New North Lake Corridor: Madison to Kirkland

Description: A HCT-only crossing from Kirkland to Madison Park/Capitol Hill on a north lake crossing has been suggested. More engineering study would be needed to determine the feasibility the crossing, which includes a diagonal crossing of the SR-520 corridor and substantial distances in a tube or tunnel. A large number of route options are possible on both east or west side.

First level screening evaluation results

Rating

<i>Transportation Effectiveness: Will the alternative be effective in improving mobility for people or goods?</i>		2
MEASURE	DISCUSSION	
Ridership potential: What are the size and the character of markets served? What is the potential to reduce congestion?	Limited ridership potential because the route would not directly serve major urban centers except for potentially the Seattle CBD. The transit market between these two points is small. North Seattle and South Seattle travelers to the eastside would not be well served. The route would not preclude connections to Redmond or Bellevue but would increase travel times due to the distance traveled.	
Reliability: System Capacity	No major difference between this and other alternatives. HCT would still have a comparably high reliability and safety.	
System and plan compatibility	Not consistent with regional transportation systems and plans. Would connect Madison and Kirkland which are not regional urban centers, although Kirkland is an activity center.	
<i>Environmental Impacts: Can we reasonably avoid, minimize or mitigate environmental impacts?</i>		1
MEASURE	DISCUSSION	
Wetlands	Wetlands on the north side of Madison, southeast of the arboretum, may be impacted.	
Habitat (especially ESA species)	This alternative would involve a tunnel or submerged tube, rather than a bridge, so the impacts to migrating edge-oriented juvenile would be somewhat less. Bald eagle habitat may be impacted in the Madison park area.	
Historic, Cultural, Parkland	Parks potentially impacted include Madison Park, Kiwanis Park, Waverly Beach Park, Waverly Park, Marina Park, and Juanita Bay Park.	
Displacements	A high number of displacements could result since Madison Park and downtown Kirkland are densely populated areas.	
Neighborhood effects	A new transportation corridor would be developed within the Sand Point and Kirkland neighborhoods. HCT could act as a physical barrier within these neighborhoods, cause increased noise levels and increased neighborhood cut-through traffic to access HCT stations/park-and-ride lots. Vents may have impacts.	



Costs	
MEASURE	DISCUSSION
Costs	An angular crossing of the Lake between Kirkland and Madison Park would be the longest of the Lake crossings, and thus likely to be the most expensive. The connections west into the Seattle CBD would also be very high cost subway sections constructed through very congested areas and difficult soil conditions. Without additional engineering work it is not known whether many of the alignment options are physically possible. On the Eastside of Lake Washington costs would also be very high since this most northern crossing cannot take advantage of existing freeway right of way, except along the branch from Eastgate to Issaquah. As with the other options, the most expensive section will be that through the Bellevue CBD which will likely have to be in subway.

RATINGS SCALE				
WORST				BEST
1	2	3	4	5
Least Effective or Most Impacts or Cannot Meet Purpose and Need	Lower Effectiveness, Medium Impacts	Medium Effectiveness, Low Impacts	Increased Effectiveness, No Impact	Most Effective, Improved Environment

Initial Staff Recommendation to carry forward

YES ☐ NO ☒

Technical Steering Committee Recommendation to carry forward

YES ☐ NO ☒



LAND USE/TDM ALTERNATIVE: D1

Name: Increase effectiveness/investment in TDM/TSM and Land Use

Description: A program to improve demand management system effectiveness, as described by the Trans-Lake Washington Study committee in its July 1999 recommendations. The alternative could feature a variety of demand management, system operations, or land use actions, including corridor agreements. However, the actions, effectiveness targets, investment and implementation details remain to be determined.

First level screening evaluation results

Rating

<i>Transportation Effectiveness: Will the alternative be effective in improving mobility for people or goods?</i>		4
MEASURE	DISCUSSION	
Travel demand reduction	Options suggested and other actions would have a reasonable potential to reduce demand or shift travel to off peak times.	
Mode Shift to Transit or HOV	Options suggested and other actions could help shift travel to alternative modes.	
Reliability (dependence on other actions or facilities)	More definition of actions and analysis would be required to evaluate. Reliability of travel would depend on how effective TDM actions are and on the level of related investments, many of which remain to be determined for the SR-520 corridor.	
System and Plan Compatibility	TDM actions are an element of both regional and local area plans, and are complementary to the region's investments in a multimodal transportation system featuring an improved HCT and HOV network.	
<i>Environmental Impacts: Can we reasonably avoid, minimize or mitigate environmental impacts?</i>		4
MEASURE	DISCUSSION	
Wetlands	No impact, as no physical changes are proposed at this time.	
Habitat	No impact, as no physical changes are proposed at this time.	
Historic, Cultural, Parkland	No additional footprint and no impact	
Displacements	No additional footprint and no impact	
Neighborhood effects	Assuming a reduction in traffic volumes, neighborhoods adjacent to SR-520 would have less air quality and noise impacts as compared to No Action, less cut-through traffic as compared to No Action.	
<i>Costs</i>		
MEASURE	DISCUSSION	
Costs	Costs and level of investment remain to be determined.	

Initial Staff Recommendation to carry forward

YES ☒ NO ☐

Technical Steering Committee Recommendation to carry forward

YES ☒ NO ☐



OTHER MODAL ALTERNATIVE: E1**Name: Passenger Ferry**

Description: Routes and services would remain to be defined. A variety of ferry terminal and service options were recently studied by Sound Transit, and the Trans-Lake Study also reviewed similar concepts.

First level screening evaluation results**Rating**

<i>Transportation Effectiveness: Will the alternative be effective in improving mobility for people or goods?</i>		2
MEASURE	DISCUSSION	
Ridership potential: What are the size and the character of markets served? What is the potential to reduce congestion?	A variety of route combinations have been recently studied through Sound Transit. Ferry service currently has limited ridership potential, particularly in comparison to a HCT system.	
Reliability: System Capacity	The ferry service would provide an additional option for travelers but would not be suited for large numbers of travelers.	
System and plan compatibility	The route would not conflict with other services, but the most likely routes do not connect well with current or and in some cases could <u>connect with</u> planned transit services or facilities.	
<i>Environmental Impacts: Can we reasonably avoid, minimize or mitigate environmental impacts?</i>		Not rated
MEASURE	DISCUSSION	
Wetlands	Not rated because alternative did not meet project purpose and need.	
Habitat (especially ESA species)	Not rated because alternative did not meet project purpose and need.	
Historic, Cultural, Parkland	Not rated because alternative did not meet project purpose and need.	
Displacements	Not rated because alternative did not meet project purpose and need.	
Neighborhood effects	Not rated because alternative did not meet project purpose and need.	
Costs		
MEASURE	DISCUSSION	
Costs	Not estimated because alternative did not meet project purpose and need.	

RATINGS SCALE

WORST				BEST
1	2	3	4	5
Least Effective or Most Impacts or Cannot Meet Purpose and Need	Lower Effectiveness, Medium Impacts	Medium Effectiveness, Low Impacts	Increased Effectiveness, No Impact	Most Effective, Improved Environment



Initial Staff Recommendation to carry forward

YES ☐ NO ☒ Does not meet purpose and need.

Technical Steering Committee Recommendation to carry forward

YES ☐ NO ☒ [Does not meet purpose and need but could be considered as a TDM option and will be further studied by Sound Transit in 2001 as part of other planning processes.](#)



OTHER MODAL ALTERNATIVE: E2**NAME: Arterial Connections**

Description: A variety of programs to improve suburban arterials were suggested during public scoping, but specific projects and locations were not defined. The alternative was assumed to be focused on eastside arterials in the general SR-520 area. More engineering study would be required to allow evaluation on the basis of environmental impacts or costs. Options suggested include:

1. Develop an improved arterial network.
2. Improve signal systems/ coordination on arterials

First level screening evaluation results**Rating**

<i>Transportation Effectiveness: Will the alternative be effective in improving mobility for people or goods?</i>		1
MEASURE	DISCUSSION	
Mobility: person and vehicles carried	Although some localized travel benefits could result from arterial and operational improvements, there would be little benefit to Trans-Lake travelers. Does not meet project's purpose and need.	
Mobility: congestion reduction	No substantial reduction in congestion would be expected.	
Safety and Reliability: Connecting Facilities	Connecting facilities could benefit as long as they do not become cut-through alternatives to travel on SR-520 itself.	
Safety and Reliability: System Capacity	The operational and capacity changes could provide local benefits but would not increase system capacity.	
Safety and Reliability: HOV system	Some benefit to transit and HOV users could benefit as they approach or leave SR-520 , but delays on the SR-520 would remain.	
System and plan compatibility	Would not be inconsistent with local plans, but would not provide the level of mobility improvement that are envisioned in regional plans . Would provide little benefit to regional transit systems.	
<i>Environmental Impacts: Can we reasonably avoid, minimize or mitigate environmental impacts?</i>		Not rated
MEASURE	DISCUSSION	
Wetlands	Not enough definition to assess	
ESA Habitat	Not enough definition to assess	
Historic, Cultural, Parkland	Not enough definition to assess	
Displacements	Not enough definition to assess	
Neighborhood effects	Not enough definition to assess	



Costs	
MEASURE	DISCUSSION
Costs	Not determined.

RATINGS SCALE				
WORST				BEST
1	2	3	4	5
Least Effective or Most Impacts or Cannot Meet Purpose and Need	Lower Effectiveness, Medium Impacts	Medium Effectiveness or Low Impacts	Increased Effectiveness, No Impact	Most Effective, Improved Environment

Initial Staff Recommendation to carry forward

YES ☐ NO ☒ Does not meet purpose and need.

Technical Steering Committee Recommendation to carry forward

YES ☐ NO ☒ Does not meet purpose and need.

